

## REMARKS

This is further in response to the outstanding Office Action dated February 25, 2008 and the Advisory Action dated May 13, 2008. The claims now pending in the application are claims 1-38. Applicants previously withdrew, without prejudice or disclaimer, claims 1-14 and 19-22. Applicants have amended claims 15-18, 23-25, 27, 29, 31-32 and 38. Applicants have added new claim 39. Applicants respectfully request withdrawal of the outstanding rejections and allowance of the claims.

Applicants gratefully acknowledge the telephonic interview with the Examiner on June 19, 2008 with Applicant's attorney Charles F. Charpie, III. The substance of the interview was a discussion of proposed changes to the Specification to clarify the invention as shown in Fig. 3 and a discussion of the proposed changes to Applicants' independent claim 15 to overcome the cited Ingram reference. At the end of the telephone interview, no agreement was reached on the proposed amendments, but the Examiner agreed to consider an Amendment After Final Rejection.

Applicants have amended paragraphs [0040] – [0042] on page 10 and paragraph [0043] on page 14 to better define the invention. Support for the amended paragraphs is found in Fig. 3. No new matter has been added. Fig. 3 is an enlarged schematic cross-sectional elevational view of the asphalt coated sheet 20. Fig. 3 illustrates elements and portions of the asphalt coated sheet 20 including the substrate (14) and the asphalt coating (18) applied to the substrate (14). Fig. 3 also illustrates an upper asphalt coated portion positioned above the substrate (14) and a lower asphalt coated portion positioned below the substrate (14). Fig. 3 further shows that the upper asphalt coated portion includes an upper surface portion positioned at the top of the upper asphalt coated portion. The first portion of granules (46) and the second portion of granules (50) are shown positioned within the upper surface portion of the upper asphalt coated portion. While some of the first portion of granules (46) are shown to be enveloped by the upper surface portion of the upper asphalt coated portion, it should be appreciated that substantially all of the first portion of granules (46)

are illustrated to be positioned within the upper surface portion of the upper asphalt coated portion. Additionally, Fig. 3 illustrates that substantially few of the first portion of granules (46) and few of the second portion of granules (50) extend in a downward direction below the upper surface portion of the upper asphalt coated portion of the asphalt-coated sheet (20).

In the outstanding Office Action, independent claim 38 was finally rejected under 35 U.S.C. §103(a) as being unpatentable over Ingram (U.S. 3,084,059) in view of Kiik (U.S. 6,585,813).

Independent claim 38 has been amended to provide a method of manufacturing a roofing shingle. The roofing shingle has an upper surface portion positioned at the top of an upper asphalt coated portion. A first portion of prime granules is deposited onto the upper surface portion of the upper asphalt coated portion such that the first portion of prime granules remains substantially within the upper surface portion of the upper asphalt coated portion.

In the Office Action dated Feb. 25, 2008, the Examiner asserts the Ingram reference teaches all of the limitations of Applicants' amended claim 38 with the exception of a second portion of aggregates that are anti-microorganism aggregates. However, the Ingram reference does not show the structure of the roofing shingle as claimed in Applicants' amended independent claim 38 for several reasons. First, the Ingram reference does not show a roofing shingle having an upper surface portion positioned at the top of an upper asphalt coated portion, wherein a first portion of prime granules is deposited onto the upper surface portion of the upper asphalt coated portion such that the first portion of prime granules remains substantially within the upper surface portion of the upper asphalt coated portion. Rather, the Ingram reference discloses a roofing material, consisting of a mixture of rock particles of varying sizes, applied to molten asphalt (column 7, lines 12-14). When applied to the molten asphalt, the roofing material is generally evenly distributed in layers throughout the asphalt matrix. Various sizes of the roofing material can be found in the various layers (column 3, lines 54-74). There is simply no reference in the Ingram reference of

a roofing shingle having an upper surface portion positioned at the top of an upper asphalt coated portion, wherein a first portion of prime granules is deposited onto the upper surface portion of the upper asphalt coated portion such that the first portion of prime granules remains substantially within the upper surface portion of the upper asphalt coated portion as claimed in Applicants' amended independent claim 38.

Second, the Ingram does not show the limitation contained in amended independent claim 38 wherein the first portion of granules are prime granules. In the Office Action dated Feb. 25, 2008, the Examiner asserts the particles of Ingram are understood to read on the first portion of prime granules. However, the aggregate particles of Ingram are not prime granules. Rather, the aggregate particles of Ingram can be a mixture of rock particles and can also be waste or by-product materials, such as ceramic scrap, tile scrap and furnace slag (column 1, lines 12-15). Applicants assert that one skilled in the art would appreciate that the prime shingle granules deposited on an asphalt coated sheet as claimed in Applicants' amended independent claim 38 are structurally different from the roofing material used in the Ingram reference. The prime shingle granules claimed in Applicants' amended independent claim 38 are well known by those skilled in the art and consist of materials treated with a ceramic coating. The prime granules, having the ceramic coating, resist weathering of the roofing material by protecting the asphalt from UV light. While the granules help protect the underlying asphalt coated sheet, the granules also provide an aesthetically pleasing roof appearance (page 1, paragraph [0003]) and can be combined into blend drops to provide a desired appearance, such as for example a weathered wood appearance or a slate appearance. One skilled in the art can appreciate that the ceramic coating and coloring of the granules result in granules that are relatively expensive compared to filler roofing material. Given the cost difference between the roofing material disclosed in Ingram and the granules claimed in Applicants' amended independent claim 38, no one skilled in the art would ever use Applicants' granules as the roofing material in the Ingram reference. In the Advisory Action dated May 13, 2008, the Examiner

asserts Applicants' disclosure contains no support for the narrow definition of a prime granule to include a ceramic coating. However, Applicants assert prime granules are well known to those skilled in the art as granules typically applied to the prime region of a shingle, where the prime region of a shingle is the region of the shingle that is visible when the shingle is installed upon a roof. Prime granules, having a ceramic coating, have been commonly used in the roofing industry for over 50 years by most shingle manufacturers. Prime granules are well known to have functional requirements for protecting the underlying asphalt strip as well as providing an aesthetically pleasing appearance of the roof.

In the Office Action dated Feb. 25, 2008, to overcome the deficiencies in Ingram, the Examiner relies on Kiik. The Examiner asserts the Kiik reference teaches surface covering roofing shingles with anti-microbial copper or tin particles.

However, even if the Ingram and Kiik references are combined as suggested by the Examiner, the resulting combination does not encompass the limitations of the invention as claimed in Applicants' amended independent claim 38. Specifically, a combination of the Ingram and Kiik references does not show a roofing shingle having an upper surface portion positioned at the top of an upper asphalt coated portion, wherein a first portion of prime granules is deposited onto the upper surface portion of the upper asphalt coated portion such that the first portion of prime granules remains substantially within the upper surface portion of the upper asphalt coated portion.

It is well established that all claim limitations must be taught or suggested. As set forth in the MPEP, at least at §2143.03, in order to establish *prima facie* obviousness of a claimed invention, all words in a claim must be considered in judging the patentability of that claim against the prior art, citing *In Re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). In this regard, Applicants' amended independent claim 38 is non-obvious under 35 U.S.C. §103 in view of Ingram and Kiik. Therefore, the rejection of amended independent claim 38 is improper and the claim is patentable as amended.

In the outstanding Office Action, amended independent claims 15, 16 and 23 were finally rejected under 35 U.S.C. §103(a) as being unpatentable over Ingram (U.S. 3,084,059) in view of Kiik (U.S. 6,585,813).

In a manner similar to independent claim 38, independent claims 15, 16 and 23 have been amended to provide a structural limitation wherein a roofing shingle has an upper surface portion positioned at the top of an upper asphalt coated portion, and wherein a first portion of prime granules is deposited onto the upper surface portion of the upper asphalt coated portion such that the first portion of prime granules remains substantially within the upper surface portion of the upper asphalt coated portion.

For the reasons indicated above concerning amended independent claim 38, there is simply no disclosure in either of the Ingram or Kiik references taken alone, or the combination of the Ingram and Kiik references of a roofing shingle having an upper surface portion positioned at the top of an upper asphalt coated portion, wherein a first portion of prime granules is deposited onto the upper surface portion of the upper asphalt coated portion such that the first portion of prime granules remains substantially within the upper surface portion of the upper asphalt coated portion. In this regard, Applicants' amended independent claims 15, 16 and 23 are non-obvious under 35 U.S.C. §103 in view of Ingram and Kiik. Therefore, the rejection of amended independent claims 15, 16 and 23 are improper and the claims are patentable as amended.

Dependent claims 24-30 depend on amended claim 15 and for at least this reason, are also patentable.

Dependent claims 17-18 and 31-37 depend on amended claim 16 and for at least this reason, are also patentable.

In the event the Examiner does not find the arguments presented above sufficiently persuasive to show that the present claims are patentable, Applicants are supplying a Declaration with additional evidence as to patentability. The Declaration, executed by Mr. Lawrence J. Grubka, states that the level of ordinary skill in the field of shingle design would be that of a product or process engineer with at least a Bachelor's degree in engineering or science, and with at

least five years of shingle process or product design experience. Mr. Grubka, a Senior Engineer employed by Owens Corning, has worked in various research and development capacities for the last 31 years, and has, most relevantly, experience as a project leader or lead researcher for projects involving algae and microorganism resistant shingles.

Mr. Grubka further states the filler roofing material disclosed in the U.S. Patent No. 3,084,059 to Ingram is structurally different from the first portion of granules deposited on the asphalt coated sheet as claimed in Applicants' amended independent claims 15, 16 and 23. The reasons for the structural difference include:

1. The roofing material of Ingram is generally evenly distributed throughout various layers formed in the asphalt matrix whereas in the current application, the first portion of granules is deposited on the upper surface portion of the upper asphalt coated portion of the asphalt coated sheet, and the first portion of granules remain substantially within the upper surface portion of the upper asphalt coated portion of the asphalt coated sheet.
2. The roofing material of Ingram consists of a mixture of rock particles and/or waste or by-product materials such as ceramic scrap, tile scrap and furnace slag. In contrast, the first portion of granules deposited on the asphalt coated sheet consists of shingle granules well known by those skilled in the art to be materials treated with a ceramic coating. Shingle granules having a ceramic coating have been used in the roofing industry for over 50 years by major shingle manufacturers.
3. The purpose of the roofing material disclosed in Ingram is to displace a voluminous quantity of asphalt thereby extending the use of the asphalt and lowering the cost of the shingles. In contrast, the purpose of the first portion of shingle granules deposited on the asphalt coated sheet is to protect the asphalt from harmful ultraviolet light while at the same time presenting an aesthetically pleasing appearance.

4. The roofing material of Ingram is intended to be relatively inexpensive thereby facilitating the use of materials such as ceramic scrap, tile scrap and furnace slag. Alternatively, since the granules in Applicants' claims are shingle granules rather than the filler used in Ingram, the granules in the first portion of shingle granules deposited on the asphalt coated sheet have requirements as to size consistency and coloring. These requirements result in granules that are relatively expensive compared to filler roofing material. Given the cost differences, no one skilled in the art would ever use the first portion of granules as filler roofing material.
5. The combination of the Ingram and Kiik references fails to provide a first portion of granules applied to the upper surface portion of the upper asphalt coated portion of the asphalt coated sheet in such a manner that the first portion of granules remains substantially within the upper surface portion of the upper asphalt coated portion of the asphalt coated sheet. The combination of the Ingram and Kiik references also fails to provide a second portion of granules, comprising a mixture of granules and microorganism resistant granules, applied over the first portion of granules. In addition, the combination of the Ingram and Kiik references fails to provide a two step process including a first step of applying a first portion of granules to the asphalt coated sheet in such a manner that the first portion of granules remains substantially within the upper surface portion of the upper asphalt coated portion of the asphalt coated sheet, and a second step of applying a second portion of granules, comprising a mixture of granules and microorganism resistant granules, applied over the first portion of granules

Applicants have added new independent claim 39 to better define the invention. Independent claim 39 provides a roofing shingle having an upper surface portion positioned at the top of an upper asphalt coated portion. A first portion of granules is deposited onto the upper surface portion of the upper asphalt coated portion such that substantially few of the first portion of granules extend in a downward direction beyond the upper surface portion of the upper

asphalt coated portion. Support for new independent claim 39 can be found in the Specification in amended paragraph [0043].

In view of the above remarks, Applicants have shown that the amended claims are in proper form for allowance, and the invention, as defined in the amended claims, is not taught nor disclosed by the applied references. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections of record, and allowance of all claims.



## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: David P. Aschenbeck et al.	)	Group Art Unit 1773
	)	
Serial No. 10/749,310	)	Examiner: Kevin R. Krueer
	)	
Filed: December 31, 2003	)	Confirmation No. 1792
	)	
For: MICROORGANISM RESISTANT	)	Attorney Docket 25320A
SHINGLE AND METHOD OF	)	
MAKING SAME	)	

**DECLARATION OF LAWRENCE J. GRUBKA**

Commissioner For Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

I, Lawrence J. Grubka, declare and state as follows:

1. I am a Senior Engineer employed by Owens Corning at the Owens Corning Technical Center in Granville, Ohio. I joined Owens Corning in 1977 after obtaining my Bachelor of Science degree in Mechanical Engineering from the Michigan State University in 1972 and a Masters degree in Mechanical Engineering from the California Institute of Technology in 1974. I have worked in various research capacities for Owens Corning for approximately 22 years. Most of my work at Owens Corning has been in the area of roofing and asphalt products. I have been named as an inventor on at least 14 issued U.S. patents.

2. As part of my work at Owens Corning, I have been named as a project leader or lead researcher on a number of shingle-related research projects. These shingle-related research projects include development and application of algae and microorganism resistant shingle granules, and development and application of algae and microorganism resistant shingle coatings. As a project leader or lead researcher

on the shingle-related projects, I studied the effectiveness of various algae and microorganism resistant shingle materials and designs, and evaluated various manufacturing methods of algae and microorganism resistant shingles that would provide an effective, aesthetically pleasing algae and microorganism resistant shingle.

3. It is my opinion that the level of ordinary skill in the field of shingle design is that of a product or process engineer with at least a bachelor's degree in engineering or science, and with at least five years of shingle process or product design experience.

4. One problem commonly facing homeowners and others having asphalt shingled roofs, among other types of roofs, has been the growth of algae and fungus on the exposed surfaces of the roof. On a roof covered with asphalt shingles, this problem manifests itself as severe discoloration of the exposed shingle surfaces.

5. To combat the problems associated with the growth of fungus, algae, and other microorganisms upon the exposed surfaces of roofing shingles, it is generally known to include anti-microorganism granules or other particles upon the exposed surfaces of the shingles. The anti-microorganism granules can be any desired anti-microorganism granules, such as for example, copper and/or other metals such as zinc, or particles of metallic copper or zinc. As is known, when exposed to moisture, the anti-microorganism granules, such as copper granules, are oxidized and slowly release or leach ions which have a toxic effect on microorganisms such as algae and fungi, and thereby inhibit their growth.

6. I have read the above-identified patent application (serial number 10/749,310), entitled "MICROORGANISM RESISTANT SHINGLE AND METHOD OF MAKING SAME", and have reviewed the drawings. I note that the independent claims define a method of manufacturing a microorganism resistant roofing shingle.

7. I have read U.S. Patent No. 3,084,059 to Ingram, which discloses a filler roofing material, consisting of rock particles of varying sizes applied to molten asphalt, and U.S. Patent No. 6,585,813 to Kiik which discloses covering asphaltic roofing shingles with anti-microbial copper or tin particles.

8. The roofing material in the Ingram reference is structurally different from the first portion of granules deposited on the asphalt coated sheet as claimed in the above-identified patent application for several reasons.

9. First, the roofing material of Ingram is generally evenly distributed throughout the asphalt matrix. This results in roofing material at the top surface of the shingle, the bottom surface of the shingle and all regions in the asphalt matrix. In contrast, the above-identified patent application has a first portion of granules applied to the upper surface portion of the upper asphalt coated portion of the asphalt coated sheet in such a manner that the first portion of granules remains substantially within the upper surface portion of the upper asphalt coated portion of the asphalt coated sheet. Accordingly, substantially few of the first portion of granules and few of the second portion of granules extend in a downward direction below the upper surface portion of the upper asphalt coated portion of the asphalt-coated sheet.

10. Second, the roofing material of Ingram is a mixture of uncoated rock particles. The roofing material can also be uncoated waste or by-product materials, such as such as ceramic scrap, tile scrap and furnace slag. In contrast, the first portion of granules applied in the above-identified application are shingle granules, which are well known to those skilled in the art as materials being treated with a ceramic coating. Granules having ceramic coatings have been used as prime granules for over 50 years by major shingle manufacturers. The ceramic coating provides a protective coating to the granules thereby allowing the granules to protect the shingle from harmful ultraviolet light. Anyone skilled in the art would recognize the difference between shingle granules and the uncoated roofing materials of Ingram.

11. Third, the general purpose of the roofing material of the Ingram reference is to provide a low cost roofing material to displace a voluminous quantity of the asphalt matrix such that the use of the asphalt is extended and the costs are minimized. For such a purpose, the use of varying sizes of scrap materials, such as ceramic scrap, tile scrap and furnace slag is ideally suited. The first portion of granules used in the above-identified application has the purposes of protecting the asphalt from harmful UV light and presenting an aesthetically pleasing roof

appearance. As the first portion of granules is commonly visible on the shingles of an installed roof, the shingle granules commonly are a generally uniform size and a desirable coloring to provide a desired appearance. The desirable coloring can be such to provide the overall appearance of the roof (as in a weathered or slate appearance). Conversely, there is no requirement that the roofing material disclosed in the Ingram reference have a generally uniform size and have a desirable color that provides or enhances the overall appearance of the roof.

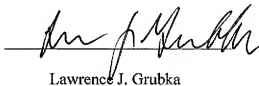
12. Lastly, I also note that the Ingram reference discloses a roofing material that is intended to be relatively inexpensive (page 1, lines 58-61) thereby allowing the use of waste or scrap materials such as ceramic scrap, tile scrap and furnace slag. In contrast, the first portion of granules in the above-identified application has requirements size consistency and coloring. These requirements result in granules that are relatively expensive compared to filler roofing material. Given the cost difference between the roofing material disclosed in Ingram and the first portion of granules claimed in Applicants' amended independent claims 15, 16 and 23, no one skilled in the art would ever use the first portion of granules as the roofing material in Ingram.

13. The combination of the Ingram and Kiik reference fails to disclose the method of the above-identified application for several reasons. First, the combination of the Ingram and Kiik references fails to provide a first portion of granules applied to the upper surface portion of the upper asphalt coated portion of the asphalt coated sheet in such a manner that the first portion of granules remains substantially within the upper surface portion of the upper asphalt coated portion of the asphalt coated sheet. Second, the combination of the Ingram and Kiik references fails to provide a second portion of granules, comprising a mixture of granules and microorganism resistant granules, applied over the first portion of granules. Lastly, the combination of the Ingram and Kiik references fails to provide a two step process including a first step of applying a first portion of granules to the asphalt coated sheet in such a manner that the first portion of granules remains substantially on the upper surface portion of the upper asphalt coated portion of the asphalt coated sheet, and a second step of

applying a second portion of granules, comprising a mixture of granules and microorganism resistant granules, applied over the first portion of granules.

14. All statements made herein of my own knowledge are true, and all statements made on information and beliefs are believed to be true.

15. These statements were made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful, false statements may jeopardize the validity of the application or any patent issuing therefrom.

A handwritten signature in black ink, appearing to read "Lawrence J. Grubka", is written over a horizontal line.

Lawrence J. Grubka

Date: 6/23/2008